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Seeds in motion

The vegetable garden as a catalyst for thought

Teaching guide

Seeds in motion

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In collaboration with PLANEA Red de arte y escuela

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1 Introduction

"SEEDS IN MOTION. The vegetable garden as a catalyst for thought" is an educational resource, part of an artwork created within the art and science collaboration of the Daniel Carasso Fellowship research project "Seed wars go digital: sustainability, big data and the social movement for open source seed systems" directed by Raquel Ajates (UNED). The main objective of the project was to analyse the feasibility of alternative models of seed governance, exploring how the concept of the commons and digital open source movements can help protect seeds from an increasing loss of varieties and privatisation. It is essential to recognise the key role of seeds in maintaining the farmers' rights, the sustainability of the food system, and the cultivated diversity in our fields and on our plates. The project included three artistic commissions that resulted in the creation of three artworks that expose with inspiration, creativity and great expertise, the social and environmental issues facing seeds and cultivated diversity, inviting us to reflect on their beauty and importance for human and planetary health, and calling for action to preserve them. The three artworks are: "Mobile Seed Bank" by Marco Ranieri, "The Dance of Seeds. The Germination of Knowledge" by the Associació de Varietats Locals, and "Sound Seeds" by Javier Forment. Each work has generated an open access interdisciplinary educational resource with multimedia material so that its impact goes beyond the exhibitions and reaches more audiences.

Introduction to the *mobile seed bank*

The Mobile Seed Bank is a portable agro-artistic mediation device. It is composed of different boxes that have different uses and can be assembled to build either a single device or two separate modules: a seed conservation and associated knowledge module and a cultivation module.

This device is designed to store, sow and reproduce seeds of traditional horticultural varieties, and to document and keep alive the traditional knowledge associated with them. The bank can function as a meeting point, a place for conversation and exchange of knowledge and experiences, and as a catalyst for peasant thinking, becoming a mobile and itinerant node of knowledge. It is thus activated as an interactive pedagogical tool: a point of access to specific rural knowledge that generates new narratives and promotes the construction of collective imaginaries.

Mobile Seed Bank. Marco Ranieri, Sprouting between Science and Art, Daniel y Nina Carasso Foundation + Museu Terra + UNED 2023

The core of the device is a small seed bank that houses different traditional horticultural varieties from the interior of the province of Castellón (Valencian region). These seeds come mainly from the collaboration with two associations dedicated to recovering local traditional horticultural varieties: Connecta Natura and the Xarxa de Guardianes de Varietats Tradicionals de Castelló (Network of Guardians of Traditional Varieties of Castelló). Other seeds have been donated directly by people who sow them in their gardens.

Several interviews and visits to various people and gardens were also carried out, and have been documented both on video and on cards. The mobile seed bank includes a tablet and a projector to play the videos.

The device, which has been made in collaboration with the Cadascú carpentry company in Valencia for its technical solutions, is a modular device consisting of several storage and cultivation boxes and a nursery/greenhouse. This configuration makes it possible to reproduce in the device itself the traditional varieties preserved in the seed bank unit, using the drawers designed for this purpose as growing space. In this way it is possible to participate in the process of reproducing the seeds of traditional horticultural varieties, fulfilling the entire life cycle of the plants, from seed to seed, thus using the *mobile seed bank* as a mobile vegetable garden.

How to grow in the *mobile seed bank*

The *mobile seed bank* has two drawers designed for cultivation. They are easily recognisable, as they are made of thicker and sturdier wooden boards. Growing in these boxes is very simple: they can be filled with garden soil, to which we can add organic matter and humus, or even cover with a thin layer of straw. A thin layer of gravel can also be placed first to facilitate drainage and prevent waterlogging. The growing space is 40 x 40 cm, and the boxes have a useful depth of about 20 cm. This is not much: it is a growing space designed for an educational experience of growing and propagating seeds of traditional vegetable varieties, which can be scaled up with a larger productive garden.

In another drawer there is a small storage space with seeds that can be planted in the cultivation drawers. The mobile vegetable garden also has a nursery in which plants can be sowed in pots or starter plants that need to go through the seedling stage for cultivation. The enclosed cultivation guide can be used as a reference. You can also use seeds of traditional varieties from your area. In the device you will find the necessary tools for growing in the boxes (hoe, rake, watering can...).

One of the most important features of this bank is that it is a mobile garden. Its mobility enables conditions for collective care. If, for example, you are in an educational community, the mobile seed bank can be moved from class to class, being cared for agreed periods of time by different groups of students. This participatory care fosters the understanding of the concept of the common good, and the dissemination of the ethics of care and ecological ethics.

3

Brief guide to the cultivation of traditional vegetable varieties

A short basic guide to horticultural cultivation. Tools that may be needed to grow crops: in pots, crates or planters you may need a spoon with a handle, a hoe, a small rake, a watering can and scissors; in soil or large crops you may need a hoe, a rake, a round spade, a hole punch, pruning shears, a pickaxe.

CULTIVATION	SOWING	ISOLATION metres	PLANT SPACING centimetres	WEEKS	NOTES
Aubergine *Solanum melongena*	Starter plant	50 - 100	45 - 60	8-13	Daytime temperatures of 20°C-25°C and nighttime temperatures of 15°C-20°C
Bean *Phaesolus vulgaris*	Direct	100		12-14	
Bean *Vigna sp*	Direct	100	30 - 50	12-14	
Broad bean *Vicia faba*	Direct	100	40 – 60	12-17	
Broccoli *Brassica oleracea*	Starter plant	1000	60 - 80	harvest: 9-12 seeds: 12-17	All varieties of Brassica oleracea can cross-pollinate. Ideal temperature range: 10°C-20°C, it suffers greatly below 0°C and above 30°C.
Cauliflower *Brassica oleracea*	Starter plant	1000	60 - 80	harvest: 20-24 seeds: 26-30	All varieties of Brassica oleracea can cross-pollinate.
Chard *Beta vulgaris*	Direct / Starter plant	2000 - 5000	35 - 45	harvest: 6-8 seeds: 12-14	Can cross-pollinate with beetroot
Chickpea *Cicer arietinum*	Direct	800	35 – 70	17-26	

CULTIVATION	SOWING	ISOLATION metres	PLANT SPACING centimetres	WEEKS	NOTES
Col *Brassica oleracea*	Starter plant	1000 - 1500	45 -65	harvest: 16-18 seeds: 20-26	All varieties of Brassica oleracea can cross-pollinate. Cabbage needs 6-8 weeks of low temperatures to flower
Corn *Zea mays*	Directa	3000 - 4000	10	13-28	
Courgette *Cucurbita pepo*	Direct / Starter plant	1000	90 - 120	8-11	Shows a lot of *hybrid vigour*
Cucumber *Cucumis sativus*	Direct / Starter plant	1000	70 - 120	24-30	
Lettuce *Lactuca sativa*	Plantel	2 - 10	20 – 40	harvest: 8-10 seeds: 12-20	
Melon *Cucumis melo*	Direct / Starter plant	1000	90 – 120	12-14	
Pea *Pisum sativum*	Direct	10 - 100	40 - 60	12-22	
Pepper *Capsicum annuum*	Starter plant	50 - 200	40 – 50	15-20	
Pumpkin *C. maxima, C. moschata, C. ficilfolia*	Direct / Starter plant	1000	90 - 120	15-18	Shows a lot of *hybrid vigour*
Sunflower *Helianthus annuus*	Direct	700 - 5000	40 – 80	17-22	
Tomato *Lycopersicum esculentum*	Starter plant	2	60 -80	16-18	Daytime temperatures of 20°C-25°C and nighttime temperatures of 15°C-20°C
Watermelon *Citrullus lanatus*	Direct / Starter plant	1000	50 – 80	14-16	Needs temperatures of more than 25°C to flower

Notes:

An alternative option to isolating plants to prevent unwanted cross-pollination is to sow varieties of the same species at different time intervals, so that their flowering periods do not overlap, and the varieties cannot cross-pollinate.

4 Educational activities

The proposed educational activities can be used both from the *Mobile Seed Bank,* if you are hosting it, and autonomously and independently of the device.

Many of the proposed didactic activities require time and depend on natural cycles and rhythms. Further guidelines on how to time them can be found in the cultivation guide.

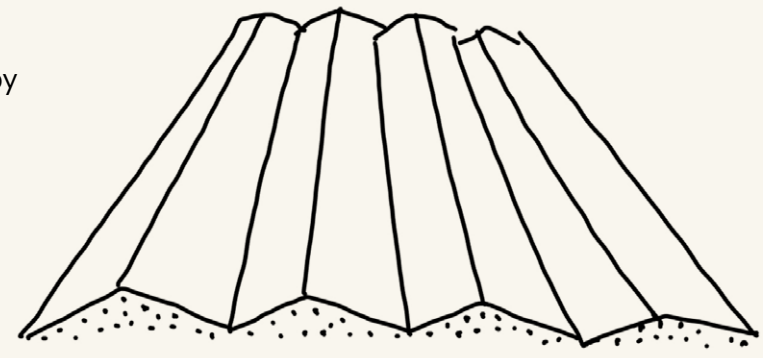
The proposed activities are aimed at an audience over 6 years old, with no age limit, and can be adapted to different educational levels, from primary to postgraduate. Depending on the age of the participants, the level and type of their studies, and the geopolitical and socio-cultural context in which we are developing the activities, we can address different topics at different levels of depth and from different perspectives.

With reference to primary and compulsory secondary education, in a primary school context, the activities proposed in the teaching guide Seeds in motion can generate synergies with Natural Sciences, Social Sciences and Art Education subjects. They can also be linked to Language and Literature, Foreign Language and Values. Whereas in a secondary school context, the activities could be connected with subjects such as Biology, Art Education, Geography and History, Technology, Projects, and also with Language and Literature, Foreign Language and Values.

Design your garden

Completion time: 1 hour

For this exercise you can draw, or photocopy and cut out, the bed layout that you can find here. Each bed has a certain number of ridges arranged in different directions. Design your plot with the number of beds you wish to have. Choose some plants (you can choose from the list proposed below in appendix 1, from the seeds kept in the Mobile Seed Bank, or from the traditional vegetable varieties of the place you live in), draw them on a sheet of paper, cut them out, and now arrange them in your garden, following the indications you can find in the cultivation table.



Ridges

Corn and pumpkin in David's garden. These two crops can be used synergistically together in combination with beans. In this combination, the corn stalk provides a vertical support for the bean, allowing it to grow, and the pumpkin spreads out on the ground, taking advantage of this space and preventing other plants from growing.

Test in the vegetable garden

You can use pots, empty jars and bottles, buckets, wooden crates and other containers to create a small vegetable garden. Fill them with garden compost. You can use worm castings as fertiliser.

If you are currently hosting the Mobile Seed Bank, you can use the seeds of traditional horticultural varieties that it holds. Otherwise, contact seed banks, seed keepers and associations near you to get local varieties, follow the cultivation guide, and try planting, growing, eating, and saving your own seeds.

If you have a plot of land at your disposal, you can try to make a vegetable garden on it.

How to make a ridge and a cultivation bed

If you are making your vegetable garden on a plot of land, you may be interested in making beds to cultivate it. Furrows are narrow, parallel channels, made to carry water in order to irrigate the crop. The crop is usually grown on the ridges between the furrows.

To make a ridge with the hoe, it is important that the soil is turned with a hoe, or you can try the no-dig method. Then, divide your beds by determining how wide you would like them to be. Draw linear beds with the hoe. Each furrow will mark the space between beds. It does not matter if the beds are straight, but if you prefer them straight, one trick is to place a stretched rope at each end of the desired length and follow the line.

Now stand to one side of the furrow and drag the soil towards you with the hoe. Lift the soil towards the imaginary line, or rope, that divides the space between furrow and furrow in half. Repeat the action on the other side. This will create an elongated mound with a triangular profile. In this space raised above the flooded area, you can plant your seeds and seedlings. You can find some instructions on how to do this in the cultivation table.

The ridge is traditionally the basic structure of the Mediterranean vegetable garden, since ancient times, and has its origins in the way of irrigating: by flooding. With this technique, the irrigation water circulates through the vegetable garden, remaining in the lower part of the ridges, making it accessible to the roots, but without flooding the base of the stem. This prevents rotting and the proliferation of harmful moulds and fungi. In addition, this ridge structure allows the person tending the garden to move along the furrows, so that the bed will remain soft, facilitating the deep growth (in the direction of the water) of the roots of our plants.

However, this system, linked to the traditional form of flood irrigation and very effective in this context, can lead to stress for the soil of our vegetable garden, because stirring the soil can damage the edaphon, the microbiota of the soil, and the fauna of small underground invertebrates that inhabit it. If we are using, or want to use, other irrigation systems, such as localised irrigation, we can use another cultivation technique, closer to permaculture.

A good technique in this case can be the mulch bed cultivation: a raised bed with a mulched soil and a good content of organic matter. In the growing beds we can provide optimal conditions for a soil rich in micro-organisms that are beneficial for our plants.

To make a growing bed, we will also proceed by dividing our vegetable garden into sections, marking the space where we will raise the growing bed with ropes or string stretched between stakes. Then, we will create some furrows around the designated space, which will allow us to move between the beds, and we will use this soil to raise the first floor of the growing bed. On top of it, place a layer of organic matter of about 8-10 cm, which can be a mixture of compost, humus, manure, pruning waste and leaf litter (you can also use recycled cardboard). This layer will create a good place for sowing and cultivation. We can cover our bed with straw. This will help to maintain the moisture and temperature of the soil.

Raising the cultivation bed has several advantages: firstly, with this technique we are adding soil and organic matter to the soil, generating a rich and fertile soil. In addition, by not digging the soil, we are not damaging the *edaphon*. Also, as with ridges, we are generating water drainage by gravity, avoiding waterlogging from both irrigation and rain.

Closing the cycle: how to extract and save seeds to generate your own seed bank

To obtain viable seeds we must wait until the fruits we choose to save seed from are fully ripe.

How to extract the seeds depends on the species:

- **Chard:** let the plant bolt, when the seeds start ripening, stop watering the plant, and when they are dry, pick them. Remove the seeds by hand and leave them to dry for a few weeks on a cloth in a bright place.
- **Aubergines:** with a knife, cut off the top of the mature fruit off and then cut it in half lengthwise from end to end. Open it with your fingers and, again with the knife, remove the seeds. Leave to dry a little on a napkin and then store them in a jar. The seeds can be left in the freezer for a few days to eliminate parasites and spores.
- **Broccoli, cabbages and other brassicaceae:** let them bolt and let the seed pods dry on the plant. When the pods are dry, they can be harvested, opened and the seeds extracted. A single plant produces many seeds.
- **Legumes:** let the pods dry on the plant. When they are dry, pick them, open them and remove the seeds. Leave to dry on a cloth for as long as required.

Tomato and cucumber seed extraction process. Day of collective extraction of seeds of traditional varieties multiplied by the Xarxa de Guardianes de Varietats Tradicionals, 2023.

- **Pumpkins and melons: c**ut the fruit in half, remove the seeds with your hands or a spoon. Put the seeds in a sieve and clean them with water to remove the remains of pulp. Leave to dry for a few days in a cloth.
- **Sunflowers:** when the flower is dry, remove the flowers by hand.
- **Lettuce:** let the lettuce bolt, the flowers will open and after about a fortnight they will give way to small hairy umbrellas, to which the seeds that we will collect are anchored.
- **Maize:** let the plants dry and pick the cobs, shortly before the plant dries out completely. The leaves of the cob are combed backwards, leaving the kernels uncovered. Once the husks have been removed, the cobs are hung up in small groups, tied together by the leaves, in a bright place, sheltered from rain and rodents. When the cobs are dry, they can be shelled by hand.
- **Cucumbers and tomatoes:** cut the fruit in half (cucumber lengthwise, tomato widthwise). Using a spoon, scoop out the seeds from the pulp into a bowl. Then place the seeds in a glass jar and leave to ferment in the covered jar for a couple of days in a cool, dark place. In this way we remove the protective membrane of the seeds, which would prevent them from germinating. After this period, the seeds are poured into a sieve and cleaned with water to remove any remaining pulp. They are then placed on a cloth and left to dry for a few days in a bright place.

→ **Peppers:** let the fruit ripen on the plant until it can be picked without effort. Make a circle around the base to separate the crown. Once the crown has been removed, remove the seeds with the fingers and leave to dry on a napkin or cloth for a few days in a bright place.

Store seeds in airtight glass jars or airtight plastic envelopes with labels indicating the vegetable variety, the year of collection, the location of the garden, and the names of the people who have grown the plant.

Seeds should be stored in a dark, cool and dry place.

The viability of seeds depends on the species, but it is recommended to sow them year on year, to keep our seed bank alive, because the best seed bank is the soil itself.

Fruit of a traditional variety of courgette identified for seed extraction. Day of collective extraction of seeds of traditional varieties multiplied by the Xarxa de Guardianes de Varietats Tradicionals, 2023

Seeds of traditional varieties prepared for conservation. Day of collective extraction of seeds of traditional varieties multiplied by the Xarxa de Guardianes de Varietats Tradicionals, 2023.

5

Every stone makes a wall, every bee makes a meadow. Pollinating action

To make a meadow you need a clover and a bee,
a clover and a bee
and reverie.

Emily Dickinson

This action of ecological *artivism* consists of dispersing, through a collective artistic action, seeds of regenerative plants, useful plants and plants allied with pollinating insects, both in our garden and in those marginal, degraded and/or disused spaces that are close to it.

Pollinating insects and other cooperating agents

Organic horticulture also works on synergy (collaboration) between plants and between plants, pollinating insects, and other collaborating agents, such as bacteria.

Some plants, for example, help their companions to grow stronger, because they ally themselves with bacteria capable of fixing nitrogen in the soil, which all plants need to grow. This is the case with legumes, a large family of plants ranging from lentils and chickpeas to clovers.

These same plants produce flowers that are highly appreciated by pollinating insects. These same insects are responsible for the pollination of many of the plants in our vegetable garden (tomatoes, courgettes, pumpkins, leguminous plants, etc...).

To help these insects I propose this artistic pollinating action.

Every bee makes a meadow

In line with the international artivist practices of *Green guerrilla* and Guerrilla gardening, we will carry out a collective artivist action using the *Nendo Dango* sowing method, invented by the Japanese agronomist Masanobu Fukuoka, as a way to provide seeds scattered on the ground with better conditions for their conservation and development. The *Nendo Dango* method of sowing consists of making small balls that are scattered by throwing them on the ground. For this reason, they are popularly known as seed bombs.

PHASE 1. HOW TO KNEAD THE SEED BOMBS

Equipment required (for 20 participants)

- 2 slabs of clay
- 1 50-litre bag of vegetable garden substrate
- 1 - 3 litres of water
- 1 bag of seed mix (recommended: lentils, peas, chickpeas, clover, sunflower, vetch, alfalfa, rocket, marigold, mallow, and local seeds)

Processing time: 2-3 hours + 2-3 days drying time

We will make seed bombs using a mixture of red clay, vegetable garden substrate, water and seeds. The clay can be used wet, dry or powdered.

In the first case, it is necessary to cut thin sheets of clay a few days in advance, let them dry and then pulverise them successively with a hammer. A mound of earth and clay powder is then made, in which a good quantity of seeds is mixed. A little water is then added until a mouldable mixture with the consistency of clay is obtained, and balls of between 2 and 4 cm in diameter are kneaded.

In case of working with wet clay, a pinch of clay is taken and kneaded with the mixture of earth and seeds to mould the balls. Let the seed balls air-dry.

For our seed bombs it is advisable to use indigenous flowering plants, well adapted to the local climate, mixed with the seeds of leguminous plants, which enrich the soil and are appreciated by pollinators.

EVERY STONE MAKES A WALL, EVERY BEE MAKES A MEADOW. Preparation of seed bombs. EVERY BEE MAKES A MEADOW, in Resistencies Artistiques, Consorci de Museus GVA, 2023

EVERY STONE MAKES A WALL, EVERY BEE MAKES A MEADOW. Ready-to-use seed pump. WILD RESILIENCIES, in Terra Teca Traca, UOC + UdG + Ayto de Barcelona, 2021

EVERY STONE MAKES A WALL, EVERY BEE MAKES A MEADOW. Throwing seed bombs with slingshots. ART FOR CHANGE, in Resistencies Artistiques, Consorci de Museus GVA, 2022

PHASE 2. POLLINATION ACTION

Once the seed bombs have dried for a few days, we can carry out a collective artivist and pollinating action by scattering the seed bombs in our garden and/or throwing them in sensitive places close to our garden.

First, we will select these sensitive areas for intervention. These will mainly be areas adjacent or close to our orchard, such as disused plots, wastelands, tree plots, road and railway verges, and other degraded peri-urban, peripheral or marginal areas. We can also move away from our garden and extend to all places that we consider likely to become a haven of biodiversity for pollinating insects.

Once the sites have been selected, we will go on one or more field trips, during which we will carry out the pollinating action. As a group, in a synchronised manner, we will disperse the seed bombs by throwing them by hand or with slingshots.

The slingshot is a symbolic element as an icon of rebellion, associated in our case with climate/environmental rebellion in the face of collective and governmental inaction against the current planetary systemic ecological crisis.

EVERY STONE MAKES A WALL, EVERY BEE MAKES A MEADOW. Seed bomb germinating. ART FOR CHANGE, in Resistencies Artistiques, Consorci de Museus GVA, 2022

Appendix 1

SOME TRADITIONAL HORTICULTURAL VARIETIES

Alberginia white: a white aubergine variety.

Alberginia purpurea: Purple aubergines are the most common.

Alberginia ratllada: a light purple variety with white stripes was very common in orchards.

Alubia del confit: a creamy, soft and tasty bean typical of the province of Castellón.

Bajoqueta de metro: characterised by the length of the pods.

Bleda penca de fulla grand: this variety of chard has been selected for its broad, fleshy leaves.

Carabassa del violí: a full gourd, with few seeds, whose elongated shape resembles that of a violin.

Carabassa valenciana (or de l'Horta): a round, very sweet, fairly large pumpkin.

Enciam cua d'oroneta: a lettuce with long, wavy leaves, green in colour and with a mild flavour.

Enciam morena: a summer lettuce with compact clump and dark green leaves.

Enciam negra: a variety of romaine lettuce, with large, dark, crisp leaves.

Fesol traiguero: an ancient variety of bean.

Garrofó ull de perdiu: a reddish-coloured garrofó.

Melo de tot l'any: a melon with green, rough skin and elongated shape, with hard, crunchy flesh.

Melo del país: a melon with a slightly wrinkled green skin and yellow flesh, very sweet and juicy.

Panizo amarillo: a variety of corn whose kernels are yellow. It is used to make popcorn.

Panizo roseno: a variety of corn whose kernels are red. It is used to make popcorn.

Pebrot redó: a variety of pepper with a conical shape and a very rounded top.

Pebrot vermell morro de vedella: a large, fleshy red pepper.

Tomaquet de penjar: this is a small, round tomato with a thick skin that makes it easy to keep for several months. It is hung in braids, which is where it gets its name from.

Tomaquet llarg: it is an elongated tomato with a small pointed tail.

Tomaquet rosa: it is a large tomato with a less intense red colour, more pastel, almost pink.

Tomaquet verd de marge: this tomato never turns red, not even when it is fully ripe. It used to be planted on the edges of the orchard to prevent theft.

Tomaquet verd de marge in David's vegetable garden, Villareal, Castellón

Appendix 2

SHORT GLOSSARY

Allochthonous flora: plants that are not native to a territory are considered to be allochthonous to that territory.

Arthropods: Arthropods are invertebrate animals with an external skeleton and jointed appendages. Arthropods include insects, arachnids, crustaceans and myriapods, among others. There are more than 1 300 000 known species of arthropods, mostly insects.

Auxiliary fauna: auxiliary fauna is the group of animals, especially small invertebrates, which are beneficial to a natural or agricultural ecosystem.

Bed: horizontal area of land that is cultivated.

Biota: the word biota refers to all the living organisms that inhabit a given place or area.

Blanket irrigation (or flood irrigation): manual irrigation technique, which consists of channelling the water and diverting it, through a system of ditches and floodgates, to the plots in order to flood them. Once the plot has been filled with water, the water inlet is closed off, allowing the water to infiltrate into the soil little by little or to evaporate over time.

Brassicaceae: a family of plants distributed throughout most of the world. The species are mostly herbaceous perennials, annuals or biennials, with clustered inflorescences and capsule-shaped fruits containing many seeds. Many of the vegetables we eat during the winter belong to this family: cabbage, broccoli, kale, cauliflower, mustard, turnip, radish, cabbage, rocket...etc.

Cultivated biodiversity: animals and plants that have been domesticated by humans for food and agriculture.

Drill: conical metal agricultural tool, used to dig the hole in which to deposit the seedling to be transplanted from the greenhouse to the vegetable garden.

Drip irrigation: consists of channelling water with small tubes to the foot of each plant and letting a drop fall every so often. Drip irrigation is controlled remotely and can be timed.

Edaphon: the specific biota of the soil. The main part of the edaphon consists of prokaryotic micro-organisms, fungi and small animals. It is to a large extent the biological activity of this microflora and microfauna that defines the features of the soil composition, and even its structure; and it is through the metabolic activity of the edaphon that the soil acquires the characteristics that keep it favourable for life.

Fabaceae: a large family of plants comprising trees, shrubs and perennial or annual herbs. Fabaceae are easily recognised by their legume-like fruits, and their compound and stipulate leaves. Their fruits and seeds, called legumes, have for millennia been the basis of human food along with cereals and domesticated animals. For this reason, fabaceae have accompanied mankind in its migrations around the planet. In addition to their relationship with the human species, legumes are of great importance for ecosystems: their flowers are highly appreciated by pollinating insects, and their roots are home to some ancient bacteria capable of fixing the nitrogen present in the atmosphere in the soil, which is very important for plant growth. Fabaceae are: acacia, alfalfa, carob, beans, peanuts, chickpeas, peas, broad beans, lentils, soya beans, clover, etc.

Hoe: hand tool consisting of a metal blade mounted perpendicularly on a wooden handle, used in agriculture for digging and moving broken or soft soil.

Hybrid vigour (or Heterosis): is a term used in genetics, breeding and selective breeding, which describes the increased strength of different traits in crossbreeds (heterozygotes), and the possibility of obtaining better individuals by combining the traits of their parents.

Native flora: plants native to a territory are considered to be indigenous to that territory.

Permaculture: is a system of holistic agricultural design principles, based on the patterns and characteristics of natural ecosystem functioning.

Pollinating insects: these insects come to the flowers to feed on the nectar secreted by the flowers in order to attract them. The nectar is generally found at the bottom of the flower and the insects, in order to reach it, come into contact with the pollen of the flowers, which accumulates on the stamens. The pollen sticks to the insects' bodies and so, when they arrive at another flower to feed, they drag it with them and deposit it on them, favouring pollination. There are many plants that entrust their pollination to insects, and among these are many of the plants that produce the fruit we eat (pumpkins and courgettes, plums, apples, peaches, oranges, pears, tomatoes and others). This is why pollinating insects are also so important for mankind. The most important pollinators are bees, as well as many species of wasps, beetles, ants, butterflies and flies.

Plowing: soil tillage is the agricultural action of ploughing, tilling or removing the surface of the soil to allow the entry of other agents introduced by human or natural action.

Ridge: the spines of earth left between furrows when ploughing, or lifted with the hoe between the irrigation furrows.

Seedbed: place or space in which plant seeds are sown to make seedlings which, once ready, will be transplanted to another location.

Solanaceae: a family of herbaceous plants that takes its name from its characteristic flowers whose shapes are reminiscent of stars or drawn suns. Solanaceae can be found all over the world, but the American continent is the main centre of diversity. These plants often have a toxic or irritant effect on

human and non-human animals, and the Solanaceae that are part of our food have been selected and modified with agricultural techniques to reduce these effects. Solanaceae include aubergines, peppers, tomatoes and potatoes.

Traditional horticultural variety: a plant variety that has been domesticated and modified to develop its own identifying characteristics. Traditional varieties have been locally adapted and are maintained by the horticulturists generation after generation.

Notes:

1. Associations consulted for the Mobile Seed Bank project*:* Connecta Natura, Xarxa de Guardians de Varietats Tradicionals de Castelló
2. Associations consulted for this educational guide: Connecta Natura, Eixarcolant Llavors, Asociació de Varietats Locals de Mallorca.
3. The action EVERY STONE MAKES A WALL, EVERY BEE MAKES A BRIDGE, is a project by the artist Marco Ranieri, with an open format, which can be reproduced and repeated respecting the context (especially taking care not to introduce non-native species), and citing its authorship, thus joining a delocalised participative artivist action.

Seeds in motion

The vegetable garden as a catalyst for thought

This guide proposes a series of didactic activities that can be used both from the *Mobile Seed Bank,* if hosted, and independently of the agro-artistic mediation device. The proposed activities are intended to transfer on a small scale the dynamics of relationship between people and habitat that occur on a large scale in the rural environment and to bring the participants closer to the cultivation of traditional vegetable varieties and the reproduction of their seeds. These are important practices for food sovereignty and an ecosocial transition.

This resource is available in English and Spanish at Centro de recursos Planea

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